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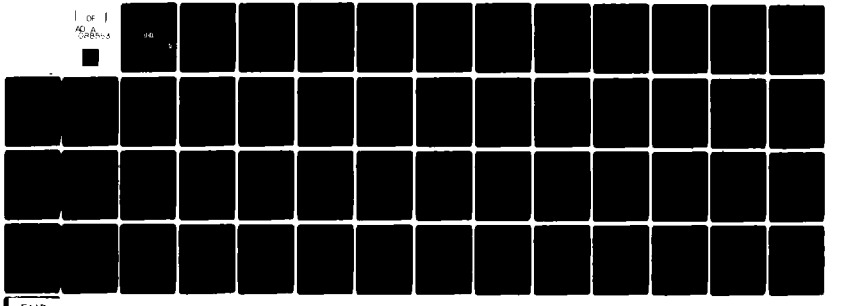

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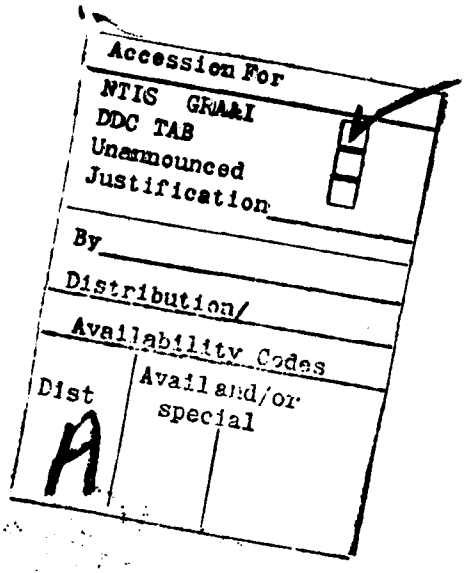

MEASURING BLACK AND WHITE PERCEPTIONS OF RACIAL DYNAMICS IN MANAGEMENT*

by

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Abstract

Intergroup theory includes propositions asserting that language, mean differences, and patterns of understanding about intergroup events will arise as a function of group membership. This research developed an empathic questionnaire through interaction of a black-white, female-male research team with a similar organizational microcosm group. The content of the questionnaire consisted of statements made by people in interviews with a race-sex alike interviewer or in group discussions with other members of their own race-sex groups. Data from 337 managers who had completed the questionnaire were analyzed using simultaneous factor analysis in several populations. Results showed four factors that were invariant across the black and white samples, mean differences between blacks and whites on all four factor scales, and different patterns of correlations among the factors for the two racial groups. Interpretation focused on the explanatory effects of overall satisfaction, ethnocentric patterns in both groups, and different modes of defense used by black and white people to manage the tensions associated with racial dynamics.

MEASURING BLACK AND WHITE PERCEPTIONS OF RACIAL DYNAMICS IN MANAGEMENT

Spurred by the civil rights activities of the 1960s and supported by the affirmative action decisions of the 1970s, organizations that once were exclusively white in their managerial ranks have changed to include black members. In limited numbers and often in special roles, blacks have now entered middle and upper middle management levels of predominantly white organizations. These changes in the composition of the managerial work force bring the tensions associated with contemporary race relations to an arena that has previously been without racial problems because it has been without racial differences.

The entry of blacks into the management ranks of predominantly white organizations poses special problems and challenges for organizational researchers (Purcell and Cavanagh, 1972; Fernandez, 1975). In light of the long history of racial discrimination in the United States, there is little reason to expect that the structural change can be achieved without stress. Indeed, the deeply held racial attitudes and the prevalence of racism in the United States call for major new insights and substantially improved strategies for change if the consequences are not to be destructive for the individuals, groups, and organizations who are involved, (Kerner and Lindsay, 1968; Jones, 1972; Alderfer, Alderfer, Tucker, and Tucker, 1980).

THEORY

Intergroup theory provides a conceptual framework for investigating and understanding race relations in organizations. The intergroup concepts used in the present study both draw upon the results of earlier research and utilize concepts developed especially to deal with the dynamics of intergroups relations embedded in organizations (Sumner, 1906; Coser, 1956; Sherif and Sherif, 1969; Blake, Shepard and Mouton, 1964; Levine and Campbell, 1972; Deutsch, 1973; Alderfer, 1977; Alderfer and Smith, 1980). Key elements in the theory include a definition of groups in organizations and a series of propositions about intergroup dynamics in organizations.

Definition of Groups in Organizations. Studying group relations in organizations calls for a definition of group that takes account of both internal and external variables in group life. Most recently the social psychology of group behavior has tended to focus primarily on the internal (i.e., interpersonal) dynamics of group life (Cartwright and Zander, 1968). The internal emphasis on group behavior arose largely as a function of methodology; experimental psychologists controlled external environments of groups in order to study their internal dynamics. The original research stimulating interest in group life, however, did not focus exclusively on internal dynamics; it involved research from the field rather than the laboratory. The concrete experiences encountered by investigators in the field balanced outward and inward orientations (Homans, 1950). More recently further developments in the concept of group life in organizations have arisen not only

because researchers have worked in the field but also because they have taken active roles in attempting to bring about change in organizations using group methods (Miller and Rice, 1967; Rice, 1969; Alderfer and Brown, 1975; Alderfer, 1977).

The definition of groups-in-organizations used in this work deals with both internal and external properties. In addition, it takes account of the multi-level nature of group life and differentiates the external environment of groups specifically to take account of relations with other groups (i.e., intergroup relations). The definition states:

> A human group is a collection of individuals (1) who have significantly interdependent relations with each other; (2) who perceive themselves as a group by reliably distinguishing members from nonmembers; (3) whose group identity is recognized by non-members; (4) who have differentiated roles in the group as a function of expectations from themselves, other group members, and nongroup members; and (5) who, as group members acting alone or in concert, have significantly interdependent relations with other groups (Alderfer, 1977, p. 230).

Our concept of group takes account of individual, interpersonal, and intergroup levels of analysis. According to this view, any phenomenon pertaining to a person is multiply-determined by the internal dynamics of the person, the interpersonal dynamics of her or his group, and the intergroup dynamics of other groups in interaction with her or his group. In turn, the intergroup relations among the interdependent elements of complex multi-group systems are a function of the internal dynamics of individuals, the interpersonal dynamics of their groups, and the relations among the groups as wholes.

Propositions about Intergroup Dynamics in Organizations. To understand group behavior in organizations it is useful to distinguish between identity groups and organization groups. Members of identity groups share common biological characteristics, participate in equivalent historical experiences, and as a result tend to develop similar world views. The most commonly recognized identity groups are those based on race or ethnicity, sex, age, and family. Members of organizational groups are assigned similar primary tasks, participate in comparable work experiences, and as a result, tend to develop common organizational views. The most commonly recognized organization groups are those based on task or function and on hierarchy. From this perspective "organization structure: can be viewed as the reification of the intergroup problems created by the principles of hierarchy of authority and division of labor (Astrachan and Flynn, 1976). People carry identity group memberships and their consequences from organization to organization, while their organization group memberships depend on individuals' relationships to particular organizations.

Every person is simultaneously a member of all her or his identity and organization groups. However, the group he or she represents at a given moment depends on the intergroup context in which events occur. The intergroup context is determined by other individuals who are present representing other groups, and by the state of group boundaries, power differences, affective patterns, cognitive formations, and leadership behavior of one's own and other groups.

Group boundaries, which have both physical and psychological indicators, determine who is a group member and regulate transactions among groups by vari-

ations in their permeability (Alderfer, 1976). Permeable boundaries imply relative ease of entry and exit by members and of exchange of energy, matter, and information among groups, while impermeable boundaries dictate the converse.

Power differences among groups determine the quality and quantity of resources groups can use in their relations with one another (Lasswell and Kaplan, 1950). The variety of dimensions on which there are power differences and the degree of discrepancy among groups on these dimensions influence the relative boundary permeability of group boundaries in relation to each other and shape the affective patterns among groups (Brown, 1978).

Affective patterns among groups refer to the degree of ethnocentrism or polarization of feeling among groups (Sumner, 1906; Coser, 1956; Levine and Campbell, 1972). Groups engaged in conflict over power differences tend to develop more impermeable boundaries and more polarized affective patterns.

Cognitive formations — including elements of language, judgments about "objective" and "subjective" conditions, and propositions that make up world and organizational views — arise from internal and external transactions among group members (Sherif and Sherif, 1969; Blake, Shepard, and Mouton, 1964; Tajfel, 1971; Billig, 1976).

The behavior of leaders and other group representatives reflects the boundary permeability, power differences, affective patterns, and cognitive formations of their group in relation to other groups. Leadership and representational roles are both cause and effect in the total pattern of intergroup relations.

INTERGROUP THEORY AND RESEARCH METHODS

As stated here, intergroup theory has implications both for what should be studied to understand black and white perceptions of racial dynamics in management and for how researchers should behave to obtain that knowledge.

The question of black and white perceptions of racial dynamics in management deals with the element of cognitive formations in intergroup theory. Three elements of cognitive formations are significant: elements of language, estimates of objective or subjective conditions, and explanations (which may be variously termed "theories" or "ideologies," depending on their susceptibility to disconfirmation). To understand the cognitive formations that shape and, in turn, are shaped by a particular intergroup relationship, data about each of the three elements should be obtained or derived from analysis. For this particular research, information from black and white managers on their ways of understanding system dynamics was required.

An empathic questionnaire takes statements by members of an organization, eliminates personally identifying material, edits the content to state clearly one thought per item, and presents the items to members of the organization for them to express varying degrees of agreement or disagreement (Alderfer and Brown, 1972). The methodology of an empathic questionnaire need not necessarily be tied to intergroup theory, but, on the other hand, it does fit very well with both the substance and process of doing research on intergroup relations in organizations (Alderfer and Smith, 1980). When used in combination with intergroup behavioral methods, the empathic questionnaire provides a potent way to

study the cognitive formations of different groups (Alderfer, Brown, Kaplan, and Smith, 1980).

A research transaction can itself be viewed as an intergroup event during which researchers representing their identity and organization groups interact with respondents representing their identity and organization groups. From an intergroup perspective, researchers using standardized questionnaires engage in ethnocentric acts. They take instruments developed in their identity and organization group cultures and impose them on people who may belong to different identity groups and who, many more times than not, do belong to different organization groups. The effect of these actions by researchers limits the scope of knowledge available to that which can be transferred across existing group boundaries and unwittingly confounds data about particular phenomena with the consequences of existing relationships between the groups represented by researchers and respondents. The effect of developing a new instrument for each organization places more emphasis on replicating the full process of how researchers relate to systems and collect data than on perfecting an instrument for use across organization.

Race Relations in Organizations. In the field of race relations there is a substantial body of literature indicating that the nature of the data obtained is influenced by the races of the researcher and respondent (Hyman et al., 1954; Schuman and Hatchett, 1974). Some of the best known and most influential work on race dynamics included both black and white investigators (Myrdal, 1944; Stouffer et al., 1949). And more recently, analyses of the politics and philosophy of social science have focused inquiry on both the

quality of knowledge and on the meaning of inferences drawn, depending on the race of the investigator (Merton, 1972; Clark, 1973).

The present research was conducted by a four person black and white, male and female research team assisted by a similar twelve person microcosm group of organization members of similar race and sex composition from the XYZ Corporation, a large industrial enterprise. The microcosm group included people of both races and sexes who represented four different hierarchical levels and all major departments in the organization. Items for the empathic questionnaire were developed from race and sex alike interviews between research team members and organization members and through group discussions that sometimes included members of the same race and sex group and other times involved the entire heterogeneous microcosm group.[1]

In final form, the empathic questionnaire consisted of 160 items. Ninety percent of these items were empathic, and the others were standard job and organization satisfaction questions of the sort frequently used in organizational behavior research. As it turned out the empathic items were of three different origins: from blacks only, from whites only and from both blacks and whites. The sequence of items in the final form of the questionnaire administered to organization members alternated the three types of items. There were approximately the same number of black and white items, about 70 each. Statements from both groups made up about fifteen percent of the total.

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[1] A detailed report of the procedures used in developing the empathic questionnaire may be found in Alderfer, Alderfer, Tucker, and Tucker (1980).

ANALYTIC PROCEDURES

Sample

Black and white subsamples were formed from the sample of 676 managers at XYZ Company who had completed the empathic Race Relations Questionnaire. Within the total sample, white males greatly outnumbered the other three race-sex groups, and there were a few more black females than black males. After excluding managers who had failed to respond to large numbers of questionnaire items, white males and black females were randomly dropped until sex balance across the two race subsamples was approximately achieved. This was done in order to avoid confounding sex and race differences in subsequent analyses. The final subsamples consisted of 220 white managers (109 males, 111 females) and 117 black managers (58 males, 59 females), for a total N of 337.

Subscales

Twenty-two subscales were formed from linear combinations of questionnaire items (see Table 1). For each respondent a missing value on an item was replaced by the mean value of that respondent's race-sex group. Table 1 contains a complete listing of the items and subscales used in this research.

Insert Table 1 here.

The construction of subscales proceeded under several constraints. First, we wanted subscales that would capture major dimensions underlying the six main item content areas on the Race Relations Questionnaire (General Race Relations, Management Groups, Hiring, Advancement, Firing, and Personal Opinions) as they

Table 1a. - Subscale 1: General racism

Item	Scored	
1	-	Race relations within XYZ are good.
2	+	Racism pervades XYZ.
3	+	Most White managers at XYZ are biased against Blacks.
4	+	Whites feel intellectually superior to Blacks at XYZ.
5	+	I have to deal with racial bigotry at XYZ.
6	+	XYZ is particularly biased against Blacks.

Subscale-item and Inter-item Correlations

		Subs.	I.1	I.2	I.3	I.4	I.5	I.6
Subscale		1						
Item	1	.70	1					
	2	.81	.58	1				
	3	.82	.49	.57	1			
	4	.72	.31	.43	.59	1		
	5	.66	.41	.49	.41	.39	1	
	6	.76	.42	.54	.56	.42	.41	1

r = 0.84

Table 1b. - Subscale 2: Specific racism

Item	Scored	
1	+	Blacks do not get the recognition they deserve.
2	+	Black managers are often given assignments with the expectation that they will fail.
3	+	Whites set up situations that justify stereotypes of Blacks.
4	+	If a Black fails at a job, all Blacks suffer in the eyes of management.
5	-	White managers share vital growth and career related information with Black managers.
6	+	Whites cannot deal with competent Blacks.
7	+	Whites cannot deal with college-educated Blacks.

Subscale-item and Inter-item Correlations

		Subs. 2	I.1	I.2	I.3	I.4	I.5	I.6	I.7
Subscale	2	1							
Item	1	.80	1				r = 0.91		
	2	.83	.61	1					
	3	.85	.60	.67	1				
	4	.71	.46	.53	.57	1			
	5	.67	.50	.49	.50	.53	1		
	6	.88	.65	.66	.71	.50	.53	1	
	7	.87	.61	.67	.71	.48	.53	.86	1

Table 1c. - Subscale 3: Management Unsupportive

Item	Scored	
1	-	Blacks are well accepted in XYZ management.
2	+	XYZ officers do little to protect the legal rights of Black managers.
3	+	XYZ officers do little to advance the cause of Black managers.

Subscale-item and Inter-item Correlations

		Subs. 3	I.1	I.2	I.3
Subscale 3		1		r = 0.76	
Item	1	.72	1		
	2	.85	.35	1	
	3	.90	.45	.73	1

Table 1d. - Subscale 4: Foreman's Club is White, Racist

Item	Scored	
1	+	The FC is essentially a white organzation.
2	+	The FC is essentially a racist organization.

Subscale-item and Inter-item Correlations

		Subs. 4	I.1	I.2
Subscale 4		1		r = 0.50
Item	1	.81	1	
	2	.82	.33	1

Table 1e. - Subscale 5: Promotion Discrimination

Item	Scored	
1	+	Blacks have to work harder than Whites to prove themselves.
2	+	Blacks are almost never evaluated fairly by White supervisors.
3	+	One of the major uses of PAC is to disqualify Blacks for management positions.
4	+	The XYZ target system for Blacks limits the advancement of Blacks
5	+	The way manpower committees are set up within XYZ it is almost impossible for Blacks to reach upper management levels.
6	-	Despite racial discrimination, competent Blacks will be promoted at XYZ.

Subscale-item and Inter-item Correlations

		Subs. 5	I.1	I.2	I.3	I.4	I.5	I.6
Subscale 5		1						
Item	1	.81	1				r = 0.88	
	2	.78	.56	1				
	3	.75	.49	.54	1			
	4	.81	.59	.51	.51	1		
	5	.88	.66	.67	.58	.67	1	
	6	.70	.44	.45	.47	.53	.56	1

Table 1f. - Subscale 6: White Promotion Advantage

Item	Scored	
1	+	Whites are given greater promotion advantages than Blacks.
2	+	Manpower committees view White males as a proven commodity.
3	+	Whites get better training than Blacks for assignments.
4	+	Qualified Whites are promoted more rapidly than equally qualified Blacks.

Subscale-item and Inter-item Correlations

		Subs. 6	I.1	I.2	I.3	I.4
Subscale	6	1			r = 0.88	
Item	1	.91	1			
	2	.79	.64	1		
	3	.82	.66	.47	1	
	4	.91	.79	.61	.71	1

Table 1g. - Subscale 7: White Self-protection

Item	Scored	
1	+	Whites stick together to protect incompetent White managers.
2	-	Whites do not protect incompetent White managers.

Subscale-item and Inter-item Correlations

		Subs. 7	I.1	I.2
Subscale 7		1		r = 0.87
Item	1	.95	1	
	2	.94	.77	1

Table 1h. - Subscale 8: Blacks Easily Fired

Item	Scored	
1	+	The union is less likely to intervene to support Blacks who are fired.
2	+	It is easier to fire a Black manager than a White manager.

Subscale-item and Inter-item Correlations

		Subs. 8	I.1	I.2
Subscale 8		1		r = 0.62
Item	1	.86	1	
	2	.85	.45	1

Table 11. - Subscale 9: Affirmative Action Bad

Item	Scored	
1	-	Affirmative Action programs are helpful.
2	+	Reverse discrimination demoralizes XYZ management.
3	-	Affirmative Action programs are fair.

Subscale-item and Inter-item Correlations

		Subs. 9	I.1	I.2	I.3
Subscale	9	1			
Item	1	.78	1		r = 0.66
	2	.72	.30	1	
	3	.81	.56	.32	1

Table 1j. - Subscale 10: Blacks are Intrusive

Item	Scored	
1	+	Blacks should be grateful they have jobs in XYZ and should stop complaining.
2	+	Black managers are too "pushy".
3	+	Black people at XYZ feel the White world owes them a living.
4	+	Blacks expect too much.
5	+	Black people should conform more and try to fit into the XYZ image.

Subscale-item and Inter-item Correlations

		Subs. 10	I.1	I.2	I.3	I.4	I.5
Subscale 10		1					
Item	1	.78	1			r = 0.82	
	2	.72	.48	1			
	3	.80	.50	.48	1		
	4	.84	.58	.52	.63	1	
	5	.68	.42	.34	.38	.43	1

Table 1k. - Subscale 11: Company Overzealous

Item	Scored	
1	-	XYZ has not done enough on Black-White issues.
2	+	XYZ has already done too much on Black-White issues.
3	+	XYZ bends over too far to help Blacks who aren't willing to help themselves.

Subscale-item and Inter-item Correlations

		Subs. 11	I.1	I.2	I.3
Subscale 11		1			
Item	1	.74	1		r = 0.70
	2	.82	.37	1	
	3	.82	.32	.64	1

Table 14 - Subscale 12: Black Hiring Advantage

Item	Scored	
1	+	XYZ would prefer to hire a Black into management rather than a White.
2	-	Black managers are hired on the basis of competence.
3	+	Unqualified Blacks are hired just to fill racial quotas.

Subscale-item and Inter-item Correlations

		Subs. 12	I.1	I.2	I.3
Subscale 12		1			r = 0.68
Item	1	.76	1		
	2	.78	.38	1	
	3	.80	.34	.53	1

Table 1m. - Subscale 13: Black Promotion Advantage

Item	Scored	
1	+	Most Blacks are promoted just because they are Black — not because they are qualified.
2	+	Qualified Blacks are promoted more rapidly than equally qualified whites.
3	+	Blacks get promoted even if they are doing a mediocre job.
4	+	Blacks are given greater promotional opportunities than Whites.

Subscale-item and Inter-item Correlations

		Subs. 13	I.1	I.2	I.3	I.4
Subscale 13		1				
Item	1	.77	1		r = 0.87	
	2	.88	.50	1		
	3	.88	.66	.67	1	
	4	.88	.51	.73	.68	1

Table 1n. - Subscale 14: Affirmative Action Hurts White Promotion

Item	Scored	
1	+	White males are unjustly penalized by Affirmative Action programs.
2	-	Despite EEO targets for Blacks, competent Whites will be promoted at XYZ.

Subscale-item and Inter-item Correlations

		Subs. 14	I.1	I.2
Subscale	14	1		r = 0.56
Item	1	.89	1	
	2	.77	.39	1

Table 1o. - Subscale 15: Black Self-protection

Item	Scored	
1	+	Blacks stick together to protect incompetent Black managers.
2	-	Blacks do not protect incompetent Black managers.

Subscale-item and Inter-item Correlations

		Subs. 15	I.1	I.2
Subscale 15		1		r = 0.82
Item	1	.92	1	
	2	.92	.70	1

Table 1p. - Subscale 16: BMA is Racist

Item	Scored	
1	+	In terms of member attitudes, BMA is essentially a racist organization.
2	+	BMA is a cause of racial tension.

Subscale-item and Inter-item Correlations

		Subs. 16	I.1	I.2
Subscale 16		1		r = 0.74
Item	1	.91	1	
	2	.88	.59	1

Table 1q. - Subscale 17: BMA Informs Blacks

Item	Scored	
1	+	BMA helps Blacks learn how XYZ's promotion system works.
2	+	BMA helps Blacks learn how the XYZ organization operates.

Subscale-item and Inter-item Correlations

		Subs. 17	I.1	I.2
Subscale	17	1		r = 0.76
Item	1	.91	1	
	2	.88	.61	1

Table 1r. - Subscale 18: BMA is Good for the Company

Item	Scored	
1	+	BMA works with top management to solve racial problems at XYZ.
2	+	BMA works with top management to solve company problems.

Subscale-item and Inter-item Correlations

		Subs. 18	I.1	I.2
Subscale 18		1		r = 0.65
Item	1	.85	1	
	2	.87	.48	1

Table 1s. - Subscale 19: BMA Supports Blacks

Item	Scored	
1	+	Because of BMA's activities, Blacks feel less isolated within XYZ.
2	+	BMA is an effective support system for Black managers.

Subscale-item and Inter-item Correlations

		Subs. 19	I.1	I.2
Subscale 19		1		r = 0.56
Item	1	.84	1	
	2	.83	.39	1

Table 1t. - Subscale 20: General Satisfaction

Item	Scored	
1	+	I feel that things are basically going well for me in my life in general (both inside and outside XYZ).
2	-	Right now I feel that things are going poorly for me in my life in general (both inside and outside XYZ).

Subscale-item and Inter-item Correlations

		Subs. 20	I.1	I.2
Subscale 20		1		r = 0.85
Item	1	.94	1	
	2	.92	.74	1

Table 1u. - Subscale 21: Job Satisfaction

Item	Scored	
1	+	Right now I am satisfied with the work I am doing at XYZ.
2	-	I am unhappy about the work I am doing at XYZ.

Subscale-item and Inter-item Correlations

		Subs. 21	I.1	I.2
Subscale 21		1		r = 0.73
Item	1	.90	1	
	2	.87	.58	1

Table 1v. - Subscale 22: Company Pride

Item	Scored	
1	+	I am proud to tell people that I work for XYZ.
2	-	I am ashamed to tell people that I work for XYZ.

Subscale-item and Inter-item Correlations

		Subs. 22	I.1	I.2
Subscale 22		1		r = 0.59
Item	1	.81	1	
	2	.87	.42	1

had emerged from the work of the microcosm group. We expected at least three, but probably four or more common factors. These factors, in turn, could be used to explore similarities and differences between the race groups in terms of their perceptions of the organization. Second, each factor needed to be identified by a minimum of three subscales[2] and each subscale had to be composed of a minimum of two items.[3]

Working within these constraints and using earlier exploratory factor analyses of items, a set of subscales was constructed from which we anticipated that six factors might emerge: general racism; organization based systemic racism; attitudes towards hiring, advancement, and firing; attitudes toward the Black Managers Association (BMA) and the Foreman's Club (FC); and general satisfaction. An initial principal axis factoring indicated that there were not enough FC subscales to extract an FC factor, reflecting the fewer items directed towards FC than towards BMA in the questionnaire. Thus, two FC subscales were dropped from subsequent analyses. In addition, contrary to our expectations, there emerged two somewhat different factors centering on black-white relations rather than the first three factors mentioned above.

Analysis

A simultaneous factor analysis in several populations (SIFASP), following the steps outlined by McGaw and Jöreskog (1971) was performed. Briefly, the intent of the analysis is to fit a factor model to the data of the two groups

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[2]Factors identified by fewer than three subscales tend to be unstable.

[3]We originally attempted the factor analysis on items within each content area. This proved unworkable given the violations of multivariate normality inherent in the item distributions. Multivariate normality of the data is an assumption underlying the factor analytic procedures used here. Linear combinations of items have partially resolved this problem.

where the groups share a common factor loading matrix but their factor dispersion (i.e., variance-covariance) matrices are allowed to vary provided that there is a satisfactory fit, differences between groups are explained by differences in the respective factor dispersion matrices. Chi-square index of the goodness of fit for the factor model provides evidence regarding the satisfactoriness of the model.

Dispersion matrices of the subscales were computed for the two race groups. In factor analysis these matrices are usually rescaled to correlation matrices. In this study, though, such rescaling would remove important differences that might exist between the two groups. A rescaling that keeps subscales in a common metric is permissable however, and McGaw and Jöreskog (1971) suggest as convenient one in which a weighted average of the rescaled dispersion matrices is a correlation matrix. Consequently, a pooled dispersion matrix $\underset{\sim}{S}$ was calculated as

$$\underset{\sim}{S} = \sum_{g=1}^{2} (\underline{N}_g - 1)\, \underset{\sim}{S}_g \Big/ \sum_{g=1}^{2} (\underline{N}_g - 1) ,$$

where S_g is the subscale covariance for group g, and $\underline{N}_g$ is the number of individuals in group g.

A pooled correlation matrix R was calculated from S as:

$$\underset{\sim}{R} = \underset{\sim}{D}\underset{\sim}{S}\underset{\sim}{D} , \text{ where } \underset{\sim}{D} = (\text{Diag } \underset{\sim}{S})^{-\frac{1}{2}}$$

Finally, the original dispersion matrices $\underset{\sim}{S}_g (g = 1, 2)$ were rescaled to $\underset{\sim}{S}_g^{*}$ where:

$$\underset{\sim}{S}_g^* = \underset{\sim}{D}\underset{\sim}{S}_g\underset{\sim}{D}$$

Box's (1949) test of the equality of the two population dispersion matrices, from which $\underset{\sim}{S}_1$ and $\underset{\sim}{S}_2$ were sampled, revealed significant differences ($F_{(\infty,\infty)} = 1.8$, $p < .001$). Had the population dispersion matrices not been significantly different, there would have been no reason to factor analyze the two groups separately.

Preliminary factor analysis. An unrestricted maximum likelihood factor analysis (MLFA), using the computer program LISREL (Jöreskog and Sorbom, 1976) was performed on the pooled correlation matrix $\underset{\sim}{R}$, successively extracting zero through four common factors because an exploratory principal axis analysis had indicated the appropriateness of a four factor solution. That solution was used to provide starting values for the unrestricted MLFA. To identify parameters, the factor dispersion matrix was constrained to be an identity matrix.

An advantage in using MLFA is its capacity to provide a χ^2 test of the goodness of fit of the factor model. However, since this χ^2 is sensitive to minor departures from the model in large samples, McGaw and Jöreskog (1971) recommend use of a reliability index, ρ, developed by Tucker and Lewis (1971), which may be estimated as:

$$\hat{\rho} = \frac{M_0 - M_k}{M_0 - 1} ,$$

where

$$M_0 = \chi_0^2/df_0 \quad \text{and} \quad M_k = \chi_k^2/df_k ,$$

the

χ^2's and df's

being those obtained with zero and k common factors. When χ^2 is equal to its expected value this index is unity. Table 2 contains the reliability indices for the zero through four factors. It is evident that four factors provide a good fit to the data, and additional factors do little to improve the fit.

Insert Table 2 here.

Table 3 contains the factor loading matrix and the unique variances associated with the unrestricted MLFA on the pooled correlation matrix. The interpretation of the four factors is clear. Factor 1 (Whites and White Systems Hurt Blacks) has subscales loading on it that assess perceived negative affect and behavior towards blacks, including policies and behavior towards blacks that have the effect of hindering black advancement in the company. Factor 2 (Blacks and Black Systems Hurt Whites) has subscales loading on it that assess perceptions of company policies or behavior perceived as supportive of blacks, at the expense of whites. Factor 3 (BMA is good) has three subscales loading on it. Here subscales measure perceived benefits arising from the existence and activity of BMA, in its being informative, supportive, and good for the company overall. Factor 4 (Satisfaction) reflects three subscales touching on various aspects of an individual's satisfaction inside and outside the company.

Insert Table 3 here.

Simultaneous factor analysis in the two populations. As in the unrestricted MLFA, good initial estimates of model parameters are desirable to ensure rapid

Table 2 - Goodness of Fit of Various Unrestricted Factor Models to Combined Groups Data

No. of Common Factors	χ^2	D.F.	$\hat{\rho}$
0	2678	231	-----
1	1511	209	0.412
2	786	188	0.700
3	490	168	0.819
4	393	149	0.845

Table 3 - Unrestricted Orthogonal Solution
for Pooled Correlation Matrix

Subscale	Common Factors I	II	III	IV	Unique Variance
General Racism	0.770	-0.110	0.010	-0.142	0.374
Specific Racism	0.752	-0.307	0.010	-0.099	0.331
Management Unsupportive	0.649	-0.256	-0.118	-0 210	0.456
FC is White, Racist	0.330	-0.105	0.092	-0.150	0.849
Promo. Discrimination	0.650	-0.337	-0.099	-0.170	0.425
White Promo. Advantage	0.680	-0.294	0.014	-0.159	0.426
White Self-protection	0.483	-0.165	0.059	-0.084	0.729
Blacks Easily Fired	0.417	-0.273	-0.127	-0.150	0.713
AA Bad in General	0.218	0.394	-0.168	0.159	0.744
Blacks are Intrusive	0.225	0.578	0.061	0.324	0.506
Company Overzealous	-0.145	0.611	-0.037	0.282	0.525
Black Hiring Advantage	0.206	0.671	-0.037	0.155	0.481
Black Promo. Advantage	0.103	0.772	0.052	0.275	0.315
AA Hurts White Promo.	0.140	0.532	-0.034	0.231	0.642
Black Self-protection	0.123	0.410	0.185	0.018	0.783
BMA is Racist	0.171	0.363	-0.137	0.173	0.790
BMA Informs Blacks	0.009	0.038	0.697	-0.106	0.501
BMA Good for Company	-0.048	0.058	0.687	0.002	0.522
BMA Supports Blacks	-0.023	-0.019	0.739	-0.001	0.454
General Satisfaction	-0.204	-0.123	-0.023	0.614	0.565
Job Satisfaction	-0.266	-0.235	0.105	0.554	0.556
Company Pride	-0.318	-0.120	0.184	0.334	0.739

convergence of the maximum likelihood estimates. In a SIFASP analysis, the factor loading matrix common to the two groups and the separate factor dispersion and unique variance matrices associated with each group are estimated. The factor loading matrix from unrestricted MLFA presented in Table 3 was used to provide the starting values for the factor loading matrix in SIFASP. Initial estimates of the factor dispersion and unique variance matrices for the two groups were obtained by performing restricted MLFA separately for each of the two S^*_g matrices, with the factor loading matrices entirely fixed with the values from the unrestricted MLFA solution, and with the factor dispersion and unique variance matrices entirely free. The results from these analyses were then used as the starting values for the SIFASP. The unrestricted SIFASP was performed with four elements fixed in each column of the common factor loading matrix (one high loading and three low loadings in each column) to identify the solution. Other elements in the factor loading matrix and all elements in the factor dispersion and unique variance matrices were left free. By not fixing the factor dispersion matrix, the factors could move to oblique orientations separately for each group.

RESULTS

Table 4 contains the final factor loading matrix common to the two groups, and separate factor dispersion and unique variance matrices for each group obtained from SIFASP. The χ^2 measure of goodness of fit is 709.9 with 370 degrees of freedom. The Tucker-Lewis (1971) reliability index is 0.83, computed by a slightly modified procedure for SIFASP models suggested by McGaw and Jöreskog (1971, p. 163). The Box test of the equality of the population factor

dispersion matrices found a significant difference ($F_{(10,\infty)} = 16.22$, $p < .001$).

Insert Table 4 here.

Table 5 contains the factor correlation matrices (obtained by rescaling the covariance matrices), which facilitate comparisons and interpretations. Differences in the pattern of correlations for the black and white groups generally center around the relationship of Factor 1 to the other factors. For blacks, these relations are negative in all instances, and for whites they are positive in all comparisons. Thus the more blacks see whites and white systems hurting blacks, the less they see blacks and black systems hurting whites and the less overall satisfaction they report. The more whites see whites and white systems hurting blacks, the more they see blacks and black systems hurting whites and the more overall satisfaction they report.

Insert Table 5 here.

Mean factor scores. Following a procedure outlined by McGaw and Jöreskog (1971, p. 164), mean factor scores for population g may be estimated as:

$$\hat{\underset{\sim}{v}}_g = \hat{\underset{\sim}{\Phi}}_g \hat{\underset{\sim}{\Lambda}}' \hat{\underset{\sim}{\Sigma}}_g^{-1} (\bar{\underset{\sim}{x}}_g - \bar{\bar{\underset{\sim}{x}}}) ,$$

where $\hat{\Phi}_g$ is the estimated factor dispersion matrix for population g, $\hat{\Lambda}$ is the estimated factor loading matrix, $\hat{\Sigma}_g = \hat{\Lambda}\hat{\Phi}_g\hat{\Lambda}' + \hat{\Psi}^2_g$, $\hat{\Psi}^2_g$ is the matrix of estimated unique variances for population g, $\bar{x}_g$ is the vector of mean subscale scores for population g, and $\bar{\bar{x}}$ is the vector of mean subscale scores for both populations combined. Table 6 contains the mean factor scores

Table 4a. - Simultaneous Solution for Two Populations

Subscale	Common Factors I	II	III	IV	Unique Variances: Whites	Blacks
General Racism	0.770	-0.127	0.006	-0.154	0.369	0.385
Specific Racism	0.732	-0.345	0.010	-0.099	0.275	0.462
Management Unsupportive	0.673	-0.299	-0.096	-0.299	0.339	0.695
FC is White, Racist	0.292	-0.100	0.084	-0.136	0.976	0.634
Promo. Discrimination	0.656	-0.356	-0.085	-0.181	0.432	0.392
White Promo. Advantage	0.683	-0.315	0.017	-0.158	0.454	0.344
White Self-protection	0.488	-0.174	0.062	-0.080	0.650	0.866
Blacks Easily Fired	0.415	-0.306	-0.137	-0.144	0.471	1.167*
AA Bad in General	0.233	0.387	-0.181	0.141	0.719	0.772
Blacks are Intrusive	0.228	0.568	0.015	0.309	0.593	0.316
Company Overzealous	-0.116	0.610	-0.046	0.256	0.578	0.418
Black Hiring Advantage	0.209	0.678	-0.058	0.107	0.465	0.509
Black Promo. Advantage	0.100	0.770	0.023	0.231	0.342	0.302
AA Hurts White Promo.	0.141	0.526	-0.030	0.210	0.689	0.561
Black Self-protection	0.105	0.416	0.156	0.020	0.849	0.672
BMA is Racist	0.172	0.341	-0.146	0.139	0.698	0.990
BMA Informs Blacks	0.010	0.025	0.690	-0.068	0.477	0.628
BMA Good for Company	-0.053	0.060	0.705	0.000	0.465	0.538
BMA Supports Blacks	-0.015	-0.021	0.740	0.022	0.472	0.426
General Satisfaction	-0.200	-0.151	-0.020	0.610	0.549	0.723
Job Satisfaction	-0.244	-0.306	0.114	0.644	0.436	0.599
Company Pride	-0.311	-0.120	0.187	0.329	0.720	0.844

Table 4b. - Estimated Factor Dispersion Matrices

Blacks

	I	II	III	IV	
I	1.106				Whites and White Systems Hurt Blacks
II	-0.321	0.325			Blacks and Black Systems Hurt Whites
III	-0.046	0.063	1.627		BMA is Good
IV	-0.229	0.071	-0.014	0.702	Satisfaction

Whites

	I	II	III	IV	
I	0.935				Whites and White Systems Hurt Blacks
II	0.224	1.282			Blacks and Black Systems Hurt Whites
III	0.032	0.019	0.660		BMA is Good
IV	0.120	0.149	-0.021	1.074	Satisfaction

Table 5 - Intercorrelations of Factors for the Two Race Groups

Blacks

	I	II	III	IV	
I	1				Whites and White Systems Hurt Blacks
II	-0.54	1			Blacks and Black Systems Hurt Whites
III	-0.03	0.09	1		BMA is Good
IV	-0.26	0.15	-0.01	1	Satisfaction

Whites

	I	II	III	IV	
I	1				Whites and White Systems Hurt Blacks
II	0.21	1			Blacks and Black Systems Hurt Whites
III	0.04	0.02	1		BMA is Good
IV	0.12	0.13	-0.03	1	Satisfaction

for the two groups and Z tests of the significance of the difference between pairs of factor means. All differences between the two groups are highly significant. Blacks see more harm by whites and white systems, less harm by blacks and black systems, better effects of the Black Management Association, and less overall satisfaction than whites.

Insert Table 6 here.

Data from this study bear directly on the three elements of the cognitive formations arising from the intergroup relationship between black and white managers in the XYZ Corporation. The content of the items themselves, having been developed by empathic and intergroup dynamic methods, take account of the language systems of the two groups. Mean differences on the factor scores provide point estimates of psychological realities of the two groups. Finally, the factor loadings and the patterns of correlations between factors for the two racial groups offer insights into the kinds of meaning the two racial groups make of their relationships.

Content of the empathic items and subscales contrasts with standard job satisfaction measures, which, of course, were not originally designed to deal with racial issues. Our results strongly suggest that efforts to study racial dynamics in organizations cannot rely on instruments designed for other purposes. Issues covered by the empathic items identify a wide range of happenings in the organization where phenomena associated with race dynamics may be observed. Typical job attitude measures tend not to show the depth or subtlety of understanding available through empathically developed multiracial teams. Furthermore, the internal consistency and conceptual clarity

Table 6 - Estimated Factor Means and Z Score

Population	I Whites and White Systems Hurt Blacks	II Blacks and Black Systems Hurt Whites	III BMA is Good	IV Satisfaction
1 White Managers	-2.62	2.57	-0.21	0.58
2 Black Managers	5.50	-3.93	0.20	-1.90
Z Score	-69.4	70.1	-3.15	23.8
P	<.001	<.001	<.001	<.001

of the empathic scales should provide some reassurance to those who doubt whether meaningful measures can be developed by intergroup empathic procedures.

From the factor mean differences it is clear that blacks and whites have very different perceptions of the state of race relations in the XYZ Corporation. The pattern of the first three mean differences follows an ethnocentric formation quite closely. Blacks see whites and white systems less favorably than they see blacks and black systems; the converse applies to whites viewing blacks. The overall satisfaction differences between the races probably reflect a combination of at least two processes. First, whites generally have higher ranking positions in the corporation than blacks, and overall satisfaction is positively related to hierarchical level. Second, the perception that whites and white systems hurt blacks is inversely related to satisfaction for blacks, and blacks generally see more damage to blacks from whites and white systems than whites do.

Insight into the meaning of race dynamics for the two racial groups is available through interpreting the different pattern of correlations between factor scores. In the minds of blacks, harm from whites and white systems is negatively related to the perception that blacks and black systems harm whites, while just the reverse is true for whites. Thus the perception of white racism by blacks is <u>not</u> followed by a perception that blacks and black systems in turn hurt whites. This particular understanding would permit blacks to pursue their legitimate racially based interests in the corporation without feeling they are hurting whites in the process, and it would mean that blacks who thought that blacks and black systems were hurting whites also felt that blacks did not have

legitimate racially based interests to pursue in the corporation. But for whites the perception of white racism in the corporation is associated with the view that blacks and black systems hurt whites. This particular understanding would mean that whites who perceived that white racism was hurting blacks also perceived that blacks and black systems were hurting whites, and it would mean that whites who did not see white racism also did not see blacks and black institutions hurting whites.

Thus pattern of cognitive and emotional splitting that make up the respective understandings of racial dynamics was different for blacks and whites. The major source of denial for blacks was that their actions to overcome racism would be damaging to whites, while the major source of denial for whites was the very existence of racial tensions and the efforts to change an inequitable situation. For blacks, denial of harm to whites by their efforts to effect change allows them to accept the perception of racism in the system; acceptance of the view that black systems will hurt whites requires that they deny the effects of white racism. For whites, acceptance of the perception of white racism brings with it the view that black efforts to change the system will hurt whites; denial of white racism brings freedom from the view that blacks and black systems will hurt whites.

From the perspective of a black who perceives white racism, changes to eliminate the racism are aimed at altering the long-standing undeserved advantage whites have over blacks, and from that point of view, do not hurt whites because they are not taking anything from whites that legitimately belonged to whites. From the perspective of a white who perceives white racism changes to eliminate the racism are aimed at altering the balance

of resource allocation within the system, and that inevitably means that whites are now sharing what they formerly possessed exclusively and the experience of loss will be encountered.

The relation between perceived white racism and feeling satisfied further adds to the different cognitive formations. Here we insert causal speculation about the meaning of the differences in the correlations. Blacks who perceive more white racism are also less satisfied, we suggest, because of the effects of that racism on their work and life experiences. Whites, on the other hand, who are more satisfied perceive more white racism, because they have sufficient security in their work and personal lives to allow themselves to accept the rather harsh realities of what the effects of white dominance have meant for blacks in this predominantly white organization.

In sum, the full analysis of cognitive formations in this study indicates that perceptions of racial dynamics in management by the racial groups is more than simply derivable from overall satisfaction and more than basic ethnocentrism between two groups. It involves each of these phenomena and, in addition to them, evidence that the racial groups demonstrate fundamentally different cognitive mechanisms for dealing with the racial tensions that affect their managerial lives. It seems unlikely that these insights could have been achieved without a data collection method that explicitly used the theory of intergroup relations in organizations and statistical procedures that permitted the uncovering of the fundamentally different perceptions and ways of understanding race relations for black and white managers.

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